

United States
Environmental Protection
Agency

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TS-PIC-20202335S
May 2002

Standard Chlorine Chem. Co., Inc
NJD002175057
Reference No: 25

Research and Development



AERIAL PHOTOGRAPHIC ANALYSIS OF STANDARD CHLORINE CHEMICAL CORPORATION SITE Kearny, New Jersey

EPA Region 2



337393



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AERIAL PHOTOGRAPHIC ANALYSIS OF
STANDARD CHLORINE CHEMICAL CORPORATION SITE

Kearny, New Jersey

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Contract No. 68-D-00-267

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U.S. ENVIRONMENTAL PROTECTION AGENCY
LAS VEGAS, NEVADA 89193-3478

ABSTRACT

This report presents the results of an aerial photographic analysis of the Standard Chlorine Chemical Corporation (Standard Chlorine) site that covers approximately 15 hectares (37 acres) adjacent to the Belleville Turnpike in Kearny, New Jersey. The chemical manufacturing facility is situated in the flood plain on the west bank of the Hackensack River. This report includes 10 dates of photographs that span the period from 1940 to 1995, documenting significant environmental conditions and identifying visible waste disposal activities. The report was requested by the U.S. Environmental Protection Agency Region 2 office to support the New Jersey Department of Environmental Protection. The state had conducted investigations at the pesticide manufacturing site and found chlorinated hydrocarbon and dioxin contamination. Specific areas of interest to the Agency are filled-in lagoons and slag piles that might have changed or diverted the river into its current shape and direction.

The photographic analysis findings determined that the chemical plant at Kearny was operational in 1940, with filling and dumping activity noted along the northern border of the facility and off-site to the north. The plant included a tank farm on the east side of the facility near the river bank. By 1947 a dark-toned liquid was observed in an impoundment which had been constructed on the south side of the tank farm, also adjacent to the Hackensack River. Dumping of mixed light- and dark-toned material was noted primarily in the northern portion of the chemical plant. By 1968 a large mound of light-toned material had been deposited along the north side of the plant. In later years this mound was removed and the northern portion of the facility was filled and leveled. By 1979 the chemical plant was being dismantled. In 1982 the southeast portion of the plant continued to operate but much of the facility appeared to be vacant. Operations continued in the southeast portion of the site as late as 1984 but by 1995 the entire chemical plant appeared inoperative and abandoned. By 1995 the northern portion of the former chemical plant had become a truck-trailer parking lot.

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INTRODUCTION

This report presents the results of an aerial photographic analysis of the Standard Chlorine Chemical Corporation (Standard Chlorine) site (CERCLIS ID# NJD002175057) that covers approximately 15 hectares (37 acres) immediately east of the Belleville Turnpike in Kearny, New Jersey. The northern boundary of the Standard Chlorine site runs parallel to a southwest-northeast oriented railroad, the eastern boundary is the shore of the Hackensack River, and the southern boundary is parallel to a northwest-southeast oriented railroad. Because this chemical manufacturing facility is situated within the flood plain of the Hackensack River it is subject to potential inundation from high-water conditions. This report includes 10 photographic dates that span the period from 1940 to 1995, and documents environmental conditions and visible waste disposal activities on the Superfund site. The report was requested by the U.S. Environmental Protection Agency Region 2 Office under the CERCLA Program to support the New Jersey Department of Environmental Protection. State agencies had conducted investigations at the site and found chromium, chlorinated-hydrocarbon, and dioxin contamination. Specific areas of interest to the Agency are filled-in lagoons and slag piles that might have changed or diverted the river into its current shape and direction (EPA, 2002).

The following information about the Standard Chlorine site at Kearny, N.J., was obtained through court documents. From 1963-1982 Standard Chlorine operations related to pesticide products included the separation of dichlorobenzenes and the processing of liquid petroleum naphthalene. In addition, Standard Chlorine at one time produced two dioxin-related compounds on the site; 1,2,3-trichlorobenzene and orthodichlorobenzene. In August 1982 The New Jersey Department of Environmental Protection (NJDEP), seeking enforcement of the New Jersey Water Pollution Control Act and the Spill Compensation and Control Act, conducted investigations that revealed portions of the Standard Chlorine site exhibited chromium contamination. Naphthalene and dichlorobenzene contamination was also discovered. On 28 February 1983, NJDEP directed Standard Chlorine to conduct a hydrogeological investigation of the site. In May 1985 NJDEP confirmed the presence of dioxin contamination on the site (NJ, 2001).

The narrative accompanying each photo figure discusses the features and conditions observed through the aerial photographic analysis process. The focus of this analysis was the identification of visible evidence of waste disposal activity and potential origins of chromium, hydrocarbon, and dioxin contamination. Nearby filling, earthmoving, and construction activity that had caused ground scars, disturbed ground, or changes in landscape morphology were reviewed in order to identify possible waste disposal sites, locations of filled-in lagoons, or slag/stock piles that might have changed or diverted the river into its current shape and direction.

Photographic analysis established that throughout the period of this analysis (1940 to 1995) significant filling and dumping of mixed light-toned and dark-toned material was evident both within and north of the site, resulting in raised and leveled ground surfaces. This filling and dumping activity did not, however, appear to have diverted the river into its current configuration. In addition to the dumping activity, impoundments containing dark-toned liquid, which appeared to lack a bottom lining material, were used by the chemical plant adjacent to the Hackensack River.

A Glossary, defining features or conditions identified in this report, follows the Photographic Analysis section. Sources for all maps, aerial photographs, and collateral data used in the production of this report are listed in the References section. A list of all aerial photographs that were identified and evaluated for potential application to this study can be obtained by contacting the EPA Work Assignment Manager. Historical aerial photographs used in the analysis of this site have been digitally scanned and printed for use in this report. A transparent overlay with interpretative data is affixed to each of the digital prints. See the Methodology section for a discussion of the scanning and printing procedures.

The U.S. Environmental Protection Agency (EPA), Environmental Sciences Division, Landscape Ecology Branch in Las Vegas, Nevada, prepared this report for the EPA Region 2 Hazardous Waste Management Division in New York, New York, and the EPA Office of Emergency and Remedial Response in Washington, D.C.



Figure 1. Study area location map, New Jersey (USGS, 1972).
Approximate scale 1:3,125,000.



Figure 2. Local study area location map, Jersey City, NY-NJ and Weehawken, NY-NJ (USGS, 1981). Approximate scale 1:24,000.

METHODOLOGY

This report was prepared using a standard methodology that includes the following steps:

- data identification and acquisition,
- photographic analysis and interpretation, and
- graphics and text preparation.

These steps are described below. Subsections also address details related to specific kinds of analyses that may be required to identify environmental features such as surface drainage and wetlands. All operational steps and processes used to perform this work (including data identification and acquisition, photographic analysis and interpretation, and graphics and text preparation) adhere to strict QA/QC guidelines and standard operating procedures (SOPs). These guidelines and procedures are documented in the Master Quality Assurance Project Plan (QAPP) prepared for Remote Sensing Support Services Contract No. 68-D-00-267 (LMS, 2002).

Data identification and acquisition included a search of government and commercial sources of historical aerial film for the study area. Photographs with optimal spatial and temporal resolution and image quality were identified for acquisition. In addition, U.S. Geological Survey (USGS) topographic maps were obtained to show the study area location and to provide geographic and topographic context.

To conduct this analysis, the analyst examined diapositives (transparencies) of historical aerial photographs showing the study area. Diapositives are most often used for analysis instead of prints because the diapositives have superior photographic resolution. They show minute details of significant environmental features that may not be discernible on a paper print.

A photographic analyst uses a stereoscope to view adjacent, overlapping pairs of diapositives on a backlit light table. In most cases, the stereoscope

is capable of various magnifications up to 60 power. Stereoscopic viewing involves using the principle of parallax (observing a feature from slightly different positions) to observe a three-dimensional representation of the area of interest. The stereoscope enhances the photo interpretation process by allowing the analyst to observe vertical as well as horizontal spatial relationships of natural and cultural features.

The process of photographic analysis involves the visual examination and comparison of many components of the photographic image. These components include shadow, tone, color, texture, shape, size, pattern, and landscape context of individual elements of a photograph. The photo analyst identifies objects, features, and "signatures" associated with specific environmental conditions or events. The term "signature" refers to a combination of components or characteristics that indicate a specific object, condition, or pattern of environmental significance. The academic and professional training, photo interpretation experience gained through repetitive observations of similar features or activities, and deductive logic of the analyst as well as background information from collateral sources (e.g., site maps, geologic reports, soil surveys) are critical factors employed in the photographic analysis.

The analyst records the results of the analysis by using a standard set of annotations and terminology to identify objects and features observed on the diapositives. Significant findings are annotated on overlays attached to the photographic or computer-reproduced prints in the report and discussed in the accompanying text. Annotations that are self-explanatory may not be discussed in the text. The annotations are defined in the legend that accompanies each print and in the text when first used.

Objects and features are identified in the graphics and text according to the analyst's degree of confidence in the evidence. A distinction is made between certain, probable, and possible identifications. When the analyst believes the identification is unmistakable (certain), no qualifier is used. Probable is used when a limited number of discernible characteristics allow the analyst to be reasonably sure of a particular identification. Possible is used when only a few characteristics are discernible, and the analyst can only infer an identification.

The prints in this report have been reproduced, either by photographic or computer methods, from the original film. Reproductions are made from the original film and may be either contact (the same size) prints or enlargements, depending on the scale of the original film. Any computer-produced prints used in this report are generated from scans of the film at approximately 1,300 dots per inch (dpi) and printed at 720 dpi. Although the reproductions allow effective display of the interpretive annotations, they may have less photographic resolution than the original film. Therefore, some of the objects and features identified in the original image and described in the text may not be as clearly discernible on the prints in this report.

Study area boundaries shown in this report were determined from aerial photographs or collateral data and do not denote legal property lines or ownership.

Surface Drainage

The surface drainage analysis produced for this report identifies the direction and potential path that a liquid spill or surface runoff would follow based on the topography of the terrain and the presence of discernible obstacles to surface flow. The analyst determines the direction of surface drainage by stereoscopic analysis of the aerial photographs and by examining USGS topographic maps. Site-specific surface drainage patterns are annotated on the map or photo overlay. Where the direction of subtle drainage cannot be determined, an indeterminate drainage line symbol is used. Regional surface flow is ascertained from the USGS topographic maps.

ANALYSIS SUMMARY

The chemical plant observed at Kearny was operational in 1940. Filling activity was noted on the marshland north of the facility. A tank farm was visible on the east side of the plant in 1940. By 1947 dark-toned liquid was observed in an impoundment constructed on the south side of this tank farm and adjacent to the Hackensack River. Dumping of mixed light- and dark-toned material was noted within the site in both 1954 and 1963. By 1968 a mound of light-toned material had been deposited along the north side of the chemical plant. This mound of light-toned material had been removed by 1973, although open dumps were observed in the southern portion of the plant. By 1979 numerous buildings at the chemical plant had been dismantled and removed. By 1984 only the southern portion of the chemical plant appeared to be operational. The remainder of the plant appeared unoccupied. The 1995 photograph revealed that the chemical plant was entirely inactive and appeared abandoned. The northern portion of the former chemical plant had been paved and was in use as a truck-trailer parking lot.

PHOTOGRAPHIC ANALYSIS

Analysis of the Weehawken and Jersey City topographic quadrangles (USGS, 1981) identified the Standard Chlorine site as being located along the west bank of a meander in the Hackensack River. There are areas of surrounding terrain annotated as marshland. Much of the land near the river has been filled, leveled, and developed. The land use surrounding the site is urban-industrial, including probable chemical manufacturing and refining, railroad marshaling and maintenance, electric power generation, and road-rail-river cargo transshipment. The elevation of the site is approximately 1 to 5 meters (5 to 15 feet). The site location appears to be within the flood zone of the Hackensack River. The close proximity to the river, minimal elevation above the water, and lack of a dike or levee suggest the site would be vulnerable to inundation in the event of a flood or otherwise elevated river level.

NOVEMBER 9, 1940 (FIGURE 3)

The available 1940 photographic coverage does not allow for a complete stereoscopic analysis of the site. Because of this, a drainage analysis could not be performed with this photo coverage. No perimeter fence is discernable around the plant which is served by two railroad spurs, a pier on the Hackensack River, and two roadways (R-1 and R-2) from the Belleville Turnpike. Vehicle parking lots are accessed via these roadways. Railroads provide transport to the plant and railroad cars (RC) are visible on the rail spurs that enter different portions of the plant. The pier on the Hackensack River can be accessed by roadway R-1 but not by railroad spur. Several drainage ditches (D-1, D-2, and D-3) channel runoff into the adjacent river. The regional terrain is flat river bottomland; adjacent open, undeveloped lands support marsh grasses.

The northern perimeter of the site is denoted by a raised railroad bed. Filling operations have raised and leveled strips of land (FL-1, FL-2-West) along both sides of this railroad bed. The vehicle access into these fill

areas is via roadway R-1. These deposits of fill have apparently covered grassy marshlands. The Hackensack River channel does not appear to have been altered by these filling operations, however.

A building (B-6) is located between roadways R-1 and R-2. The land to the north of this building may have been filled (FL-2-South) as evidenced by the lighter tone of the ground in this area. A railroad spur that enters the site from the north serves building B-6. A pipeline can be seen that connects building B-6 with a building to the east (B-7, see Figure 4). An open storage area (OS-1) is visible on the east side of building B-6 and contains possible equipment or supplies.

Buildings (B-14 through B-17) are located on the south side of roadway R-2. Building B-15 is served by a railroad spur that enters the plant from the west. A tall smokestack (SS=2) is visible on the north side of building B-17; no emissions are discerned. Ditch D-2 receives runoff from the east side of buildings B-16 and B-17 and carries it to the adjacent river. Further east of buildings B-16 and B-17 is a light-toned fill area (FL-3).

Two elongated mounds (MM) are observed south of the site and appear to be composed of fill associated with probable roadbed construction.

See Figure 4 for a detailed analysis of the eastern portion of the facility.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
→	FLOW
+	RAILWAY
· · · · ·	PIPELINE
	BERM/DIKE
⊖	EXCAVATION, PIT (EXTENSIVE)
⊕	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 3. Standard Chlorine site, November 9, 1940. Approximate scale 1:4,600.

NOVEMBER 9, 1940 (FIGURE 4)

The northern perimeter of the site is denoted by a raised railroad bed. Filling operations have raised and leveled strips of land (FL-2-West and FL-2-East). Dark-toned stains (DT ST) and dark-toned material (DTM) are noted in fill area FL-2-West.

A large building (B-1) is observed on the north side of roadway R1. A dark-toned stockpile (SP-1) is visible on the north side of this building. There are two vertical columns (VC) and a tall smokestack (SS-1) connected to the north side of building B-1. On the south side of this building are a group of approximately six horizontal tanks (HT). The lack of stereoscopic images precludes observing the tanks and columns clearly and any secondary containment structures are not apparent. Smaller buildings (B) and sheds (SH) are also visible adjacent to the large processing building B-1. Patches of light-toned mounded material (LTMM), which could be dry material spillage, are noted on the west and north sides of the building. Additional buildings (B-7 through B-10) are located south of building B-1 and are connected by pipeline to tank farms further to the east. Mounded material is visible south of building B-7.

Four buildings (B-2 through B-5) are located to the east of building B-1, separated by the railroad that enters the site from the north. An elevated pipeline is observed connecting buildings B-1 and B-4. The open area east of building B-4 contains two stockpiles (SP-2 and SP-3). No containment berms or other barriers that would prevent runoff from the chemical plant from flowing east and directly into the adjacent river are discerned along the river bank.

No barges are observed at the river pier and this feature will not be discussed unless a change is observed.

Tank farms containing rows of horizontal and vertical tanks, approximately 25 tanks total, are observed to the south of buildings B-11 and B-12. Building B-13 is also linked by pipeline to building B-7. The lack of stereoscopic analysis precludes observing the tanks clearly and any secondary containment structures can not be discerned. South of the tank farm is an open storage area (OS-2) that exhibits poor housekeeping practices as evidenced by numerous deposits of light-toned material (LTM), dark-toned material, and mixed light-

and dark-toned material. A possible derelict horizontal tank and two possible horizontal tanks are visible further south and east of building B-13. A long deposit of light-toned material is also observed along the east side of building B-12.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
←	FLOW
+	RAILWAY
...	PIPELINE
	BERM/DIKE
⊖	EXCAVATION, PIT (EXTENSIVE)
⊕	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 4. Standard Chlorine site, November 9, 1940. Approximate scale 1:1,400.

APRIL 28, 1947 (FIGURE 5)

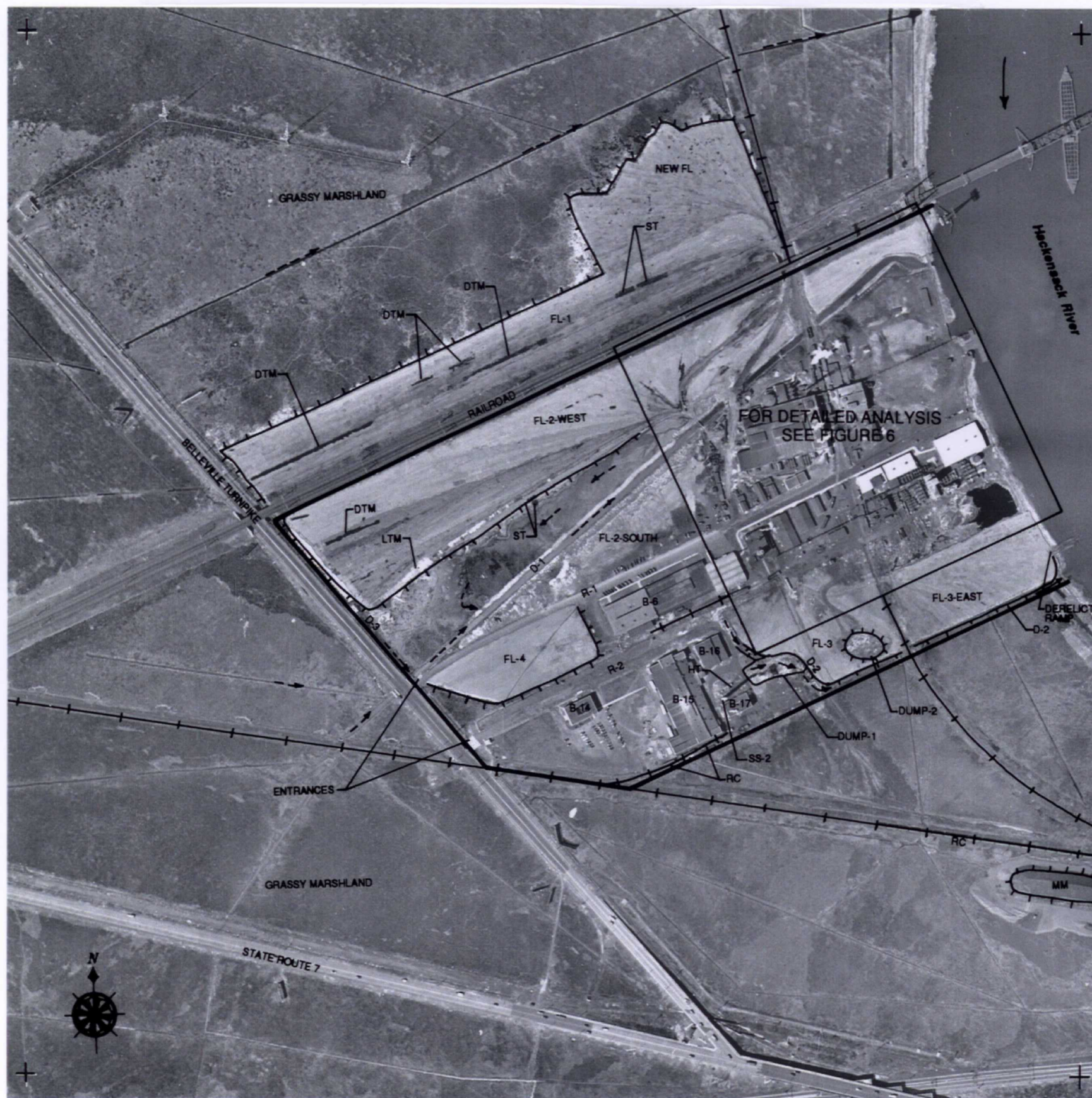
North of the site, filling operations have continued at areas FL-1 and FL-2-West. The northern edge of area FL-1 has been extended to cover additional grassy marshlands. The Hackensack River channel does not appear to have been altered by these filling operations, however. There are deposits of dark-toned material intermixed with the light-toned fill noted in areas FL-1 and FL-2-West; there are also dark-toned stains (ST) from possible liquid dumping and an area of light-toned material on the southern edge of area FL-2-West.

Another fill area (FL-4) where the land has been raised and leveled is observed west of building B-6. Several railroad tankcars (not annotated) are noted along the spur that serves building B-6.

The chemical facility continues to be operational. Although stereo photo coverage was reviewed, a perimeter fence is not discerned. Buildings B-14 through B-17 south of roadway R-2 do not appear to have been modified since 1940; smokestack SS-2 is present but no emissions are discerned. Both railroad cars and cargo trucks (not annotated) are observed at building B-15. One horizontal storage tank is visible on the north side of building B-17. Two open dumps (Dump-1, Dump-2) that contain mixed light- and dark-toned material are visible to the northeast and east of building B-17; these dumps appear to be accessible only via roadway R-2. Potential contamination from these dumps would drain into ditch D-2 and be transported to the Hackensack River.

A large mound has been deposited south of the site, adjacent to the railroad near where two elongated mounds were seen in 1940. This mound and evidence of earthmoving activity appears to be associated with roadbed construction. The mounds will be annotated but will no longer be discussed unless waste disposal activity is noted or river channel modification is observed.

See Figure 6 for a detailed analysis of the eastern portion of the facility.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
←	FLOW
+	RAILWAY
· · · · ·	PIPELINE
	BERM/DIKE
⊖	EXCAVATION, PIT (EXTENSIVE)
⊕	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
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SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 5. Standard Chlorine site, April 28, 1947. Approximate scale 1:5,530.

APRIL 28, 1947 (FIGURE 6)

Ground stains and dark-toned material are still observed north of ditch D-1 and a possible roadbed under construction in area FL-2-West crosses ditch D-1 to the north of building B-1. Building B-1 does not appear significantly changed since 1940; however, stockpile SP-1 north of building B-1 appears to have been reduced in size. On the north side of building B-1 four vertical columns, one large vertical tank (VT), four horizontal tanks, and one possible horizontal tank are observed. There are also patches of light-toned material and dark-toned mounded material. Smokestack SS-1 is still visible and three additional smokestacks (SS-3 through SS-5) can be seen on the roof of building B-1. Emissions (E) are visible from all four of these smokestacks. Six horizontal storage tanks and support/storage sheds/buildings (not annotated) are observed on the south side of building B-1. The west side of the building is being used as an open storage area (OS-3) which lacks good housekeeping practices. Three probable derelict horizontal tanks, two probable derelict vertical tanks, one possible derelict column, a group of six probable containers (CONT), and mounded material are noted in this area. Dark-toned areas south of area OS-3 appear to be possible spillage.

Building B-6 has been enlarged since 1940 and this construction has eliminated open storage area OS-1. Pipelines that connect building B-6 to B-7 and building B-7 to B-13 are again visible. A probable vertical processing column has been installed on the south side of building B-7, and a probable horizontal tank is seen further south of building B-7.

The four buildings (B-2 through B-5) south of FL-2-East remain but the two stockpiles SP-2 and SP-3, observed in 1940, are absent. Two possible derelict horizontal tanks are observed in the open area east of building B-2 and an accumulation of dark-toned mounded material is visible north of building B-2. Mounded material is visible east of building B-4. Since 1940 a pipeline has been constructed between building B-4 and the river pier. The resolution of the 1947 photograph permits the identification of a culvert at the terminus of ditch D-1 where it flows into the Hackensack River.

The tank farms south of buildings B-11 and B-12 have been enlarged to contain 1 vertical and 38 horizontal tanks. No secondary containment structures are discerned around these groups of tanks; however, an impoundment (IM-1), without a discernable bottom lining, has been formed on the south side of the tank farms. Leakage or spillage from the tank farms is likely to drain into this impoundment. A dark-toned liquid (SL) is visible within the impoundment. Dark-toned ground stains and a large pile of mixed light- and dark-toned material are still visible in this area.

Ongoing filling operations are visible to the south of impoundment IM-1. Work at the expanded fill area (FL-3-East) has raised and leveled the land on the south side of open storage area OS-2.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
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+	RAILWAY
...	PIPELINE
	BERM/DIKE
()	EXCAVATION, PIT (EXTENSIVE)
()	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
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DD	DEPRESSION
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E	EMISSION
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SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 6. Standard Chlorine site, April 28, 1947. Approximate scale 1:1,360.

FEBRUARY 18, 1954 (FIGURE 7)

Fill areas FL-1 and FL-2-West are still visible. Numerous patches of light-toned material are noted in fill area FL-2-West but dark-toned material and ground stains are less evident compared to observations in 1947. The western edge of fill area FL-2-West appears to be the active zone of dumping and filling operations. The Hackensack River channel does not appear to have been altered by these filling operations.

Building B-6 in the central portion of the chemical plant does not appear to have been modified since 1947. The former fill area FL-4 west of building B-6 is now a parking lot (not annotated).

Buildings B-14 through B-17 on the south side of roadway R-2 do not appear to have been modified since 1947. Neither railroad cars nor cargo trucks are observed at building B-15, as they had been in 1947. Drainage ditch D-2 receives runoff from the east side of buildings B-16 and B-17; a pit containing a dark-toned liquid is observed at the head of this ditch, northeast of building B-17. The dumping of mixed light- and dark-toned material on the east side of building B-17 continues (Dump-1). Further to the east of Dump-1 the second dump (Dump-2) contains light-toned mounded material.

See Figure 8 for a detailed analysis of the eastern portion of the facility.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
← — —	DRAINAGE
← — —	FLOW
— + + + —	RAILWAY
.	PIPELINE
	BERM/DIKE
⊖	EXCAVATION, PIT (EXTENSIVE)
⊕	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 7. Standard Chlorine site, February 18, 1954. Approximate scale 1:4,350.

FEBRUARY 18, 1954 (FIGURE 8)

The Standard Chlorine site continues operations; a perimeter fence is still not discerned. A railroad spur has been constructed from the north across fill area FL-2-West and serves the west side of building B-1. The four vertical columns and possible horizontal tank noted in 1947 are no longer observed on the north side of building B-1. Currently light-toned mounded material is in this area. The probable derelict horizontal tanks, probable vertical tanks, derelict column, and probable containers noted in open storage area OS-3 in 1947 are absent. The dark-toned, possible ground stains seen south of OS-3 in 1947 are not evident. Patches of light-toned mounded material are observed in OS-3 adjacent to building B-1. Three of the four smokestacks on building B-1 show emissions. The poor photo resolution does not allow counting the horizontal storage tanks (not annotated) on the south side of building B-1 although they appear unchanged. The small sheds/buildings south of building B-1 have been removed and building B-19 has been constructed.

Buildings B-6 through B-10 in the central portion of the facility do not appear changed since 1947. The open area south of building B-9 contains light-toned mounded material. The pattern of dumping appears to indicate this portion of the plant will be occupied by an enlarged open dump.

A new building (B-5A) has been constructed southeast of building B-4. Six horizontal tanks have been installed east of building B-5A and appear to have a secondary containment structure (not annotated). The elevated pipeline that runs from building B-4 to the river pier is still visible but no barges are observed. The railroad spur has been extended along the north side of building B-4 to serve building B-5A. The open area north of building B-5A contains dark-toned mounded material and deposits of mixed light- and dark-toned material. Two deposits of dark-toned mounded material are also visible north of building B-2. Surface runoff from this northeast portion of the plant is likely to enter ditch D-1 because a berm is now observed along the river bank at the east side of the chemical plant.

The tank farms to the south of buildings B-11 and B-12 do not appear to have been modified since 1947. The poor resolution precludes counting individual tanks but allows the shadow of elevated pipelines between buildings B-7, B-13, and B-11 to be discerned. The mixed light- and dark-toned material previously noted in storage area OS2 is less evident; however, impoundment IM-1 continues to contain a dark-toned liquid.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
→	FLOW
+	RAILWAY
...	PIPELINE
	BERM/DIKE
()	EXCAVATION, PIT (EXTENSIVE)
()	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STACKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 8. Standard Chlorine site, February 18, 1954. Approximate scale 1:1,360.

JANUARY 14, 1963 (FIGURE 9)

Construction activity is visible at fill area FL-1 on the north side of the railroad (north of the site). Two buildings have been erected and a large open storage area (OS-4) containing building materials has been established on portions of the former fill area. The previously noted patches of dark-toned material or dark-toned stains in this area are not apparent.

The signs of active dumping at fill area FL-2-West are not evident; however, light-toned material remains visible at the west end of this former fill area.

The open dump areas Dump-1 and Dump-2 situated east of building B-17 along the southern side of the plant continue to accumulate mixed light- and dark-toned material, possible debris and solid waste (not annotated). Surface runoff from this portion of the plant drains into ditch D2 and eventually reaches the river.

See Figure 10 for a detailed analysis of the eastern portion of the facility and Figure 11 for a detailed analysis of the western portion of the facility.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
→	FLOW
+	RAILWAY
· · · · ·	PIPELINE
	BERM/DIKE
⊖	EXCAVATION, PIT (EXTENSIVE)
⊕	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 9. Standard Chlorine site, January 14, 1963. Approximate scale 1:4,460.

JANUARY 14, 1963 (FIGURE 10)

The Standard Chlorine plant remains operational. The resolution of the 1963 photographs allows the identification of several fences (not annotated) within the plant, but a complete perimeter fence is not visible.

Although there are no signs of dumping at fill area FL-2-West a mound of material has been deposited in fill area FL-2-East.

Three horizontal tanks have been installed north of building B-1 on the north side of drainage ditch D-1. The tanks appear to lack secondary containment. Potential spillage or leakage from these tanks is likely to drain into the adjacent ditch D-1.

Stockpile SP-1 noted on the north side of building B-1 in 1954 is absent. The light-toned emissions observed over the smokestacks on the roof of building B-1 and the tall smokestack SS-1 obscure the view of the southeast side of the building. Despite the smoke, railroad boxcars (not annotated) are observed on the tracks between buildings B-1 and B-4, on the spur east of building B-4, and on the spur west of building B-1.

Three vertical columns have been reinstalled along the north side of building B-1. Only five tanks are observed in the group of horizontal tanks at the northwest corner of building B-1 where six had been noted in 1954. No change is discerned in the group of seven horizontal tanks on the south side of this building. No spillage is evident around these tanks which appear to lack secondary containment structures.

Two large mounds of light-toned material are visible in open storage area OS-3 on the west side of building B-1. Piles of possible debris (DB), dark-toned material, and crates (CR) are also present. Potentially contaminated runoff from this portion of the site, including area OS-3, drains into ditch D-1 and eventually reaches the river.

Buildings B-2 through B-5A appear operational and emissions are visible from several smokestacks (not annotated) on the roof of building B-5A. Large stockpiles (SP-4), scattered light-toned material and mixed light- and dark-

toned mounded material have been deposited in the open area on the north and east sides of building B-2. Surface runoff from this portion of the plant drains into ditch D-1. An earthen, secondary containment berm is observed around the group of six horizontal tanks located to the east of building B-5A. The river pier in this portion of the site now appears to be derelict and the pipeline that connected the pier to building B-4 in 1954 is no longer observed.

Buildings B-6 through B-10 in the central portion of the chemical plant do not appear to have been modified since 1954. The two horizontal tanks south of building B-7 still appear to lack secondary containment and dumping of light-toned material and possible solid waste (SW) continues south of building B-8.

No modifications are noted in the tank farms south of buildings B-11 and B-12; however, four of the horizontal tanks on the east side of building B-13 have been removed. Shadows obscure the view of several storage tanks so that a total tank count is not possible. The eastern portion of building B-11 has been dismantled and building B-12 appears to be under modification/renovation.

The large impoundment IM-1 has been partitioned with an earthen berm to form a second impoundment (IM-2). Impoundment IM-1 appears dry and contains a light-toned residue. A segment of pipe is visible entering impoundment IM-1 from the north. Impoundment IM-2 appears to contain light-toned liquid. Bottom-lining material could not be discerned in either of these impoundments. South of the impoundments is a rectangular structure that appears to be a probable wastewater treatment tank (WTT) and an accumulation of light-toned mounded material.



INTERPRETATION CODE

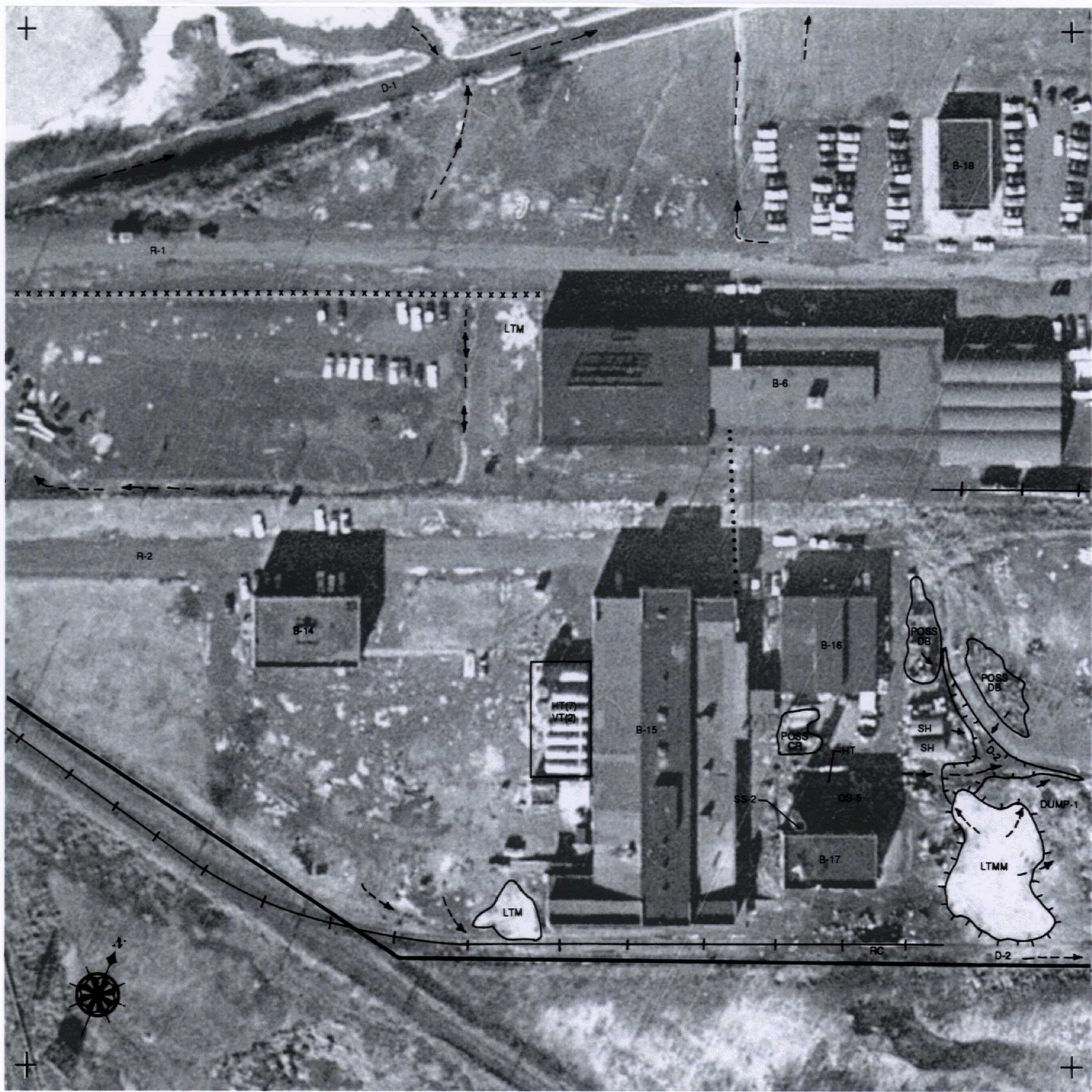
—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
→	FLOW
+	RAILWAY
...	PIPELINE
	BERM/DIKE
⊖	EXCAVATION, PIT (EXTENSIVE)
⊕	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 10. Standard Chlorine site, January 14, 1963. Approximate scale 1:1,400.

JANUARY 14, 1963 (FIGURE 11)

Buildings B-18 and B-6 in the central portion of the site do not appear to have been modified since 1954. Buildings B-14 through B-17 continue to be operational and one railroad tankcar is observed south of building B-17. Since 1954 two vertical and seven horizontal tanks have been installed on the west side of building B-15. These tanks do not appear to have secondary containment. Light-toned material is observed on the west side of building B-6 and at the southwest corner of building B-15. A storage area (OS-5) is observed between and east of buildings B-16 and B-17 which contains possible crates/boxes, possible debris, and light-toned material. Large accumulations of possible debris are piled just east of building B-16. One horizontal tank within a containment wall is observed on the north side of building B-17. Ditch D-2 receives runoff and possible discharges from buildings B-16 and B-17 and surface runoff from the storage area OS-5.

This figure shows in greater detail the open dump Dump-1 east of building B-17 where light-toned mounded material is clearly evident.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
→	FLOW
+	RAILWAY
...	PIPELINE
	BERM/DIKE
⊖	EXCAVATION, PIT (EXTENSIVE)
⊕	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 11. Standard Chlorine site, January 14, 1963. Approximate scale 1:1,200.

AUGUST 11, 1968 (FIGURE 12)

One of the buildings noted in 1963 on the north side of the railroad, in former fill area FL-1, has been removed and another large building (B-20) has been erected further east. Filling activity is evidenced by the mottled mound (FL-1A) and the larger mound (FL-1B) on the west side of the new building B-20. Fill has also been used to raise and level the west side of the open storage area OS-4. Fewer building materials are observed at area OS-4 compared to 1963 but the railroad spur that serves building B-20 appears unchanged.

The Standard Chlorine site remains operational. The improved resolution of the 1968 photo coverage allows discernment of several fences within the site but a complete perimeter fence at this site is not visible.

Earthmoving activity on the railroad bed, ground scars (GS), and stacks of rails are visible outside the southern perimeter of the chemical plant. The railroad line that enters the site from the south is evidently being serviced.

See Figure 13 for a detailed analysis of the eastern portion of the facility and Figure 14 for a detailed analysis of the western portion of the facility.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
←	FLOW
+	RAILWAY
· · ·	PIPELINE
	BERM/DIKE
⊖	EXCAVATION, PIT (EXTENSIVE)
⊕	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 12. Standard Chlorine site, August 11, 1968. Approximate scale 1:4,530.

AUGUST 11, 1968 (FIGURE 13)

Since 1963 a very large quantity of light-toned mounded material has been deposited in fill area FL-2-West. This deposit has not altered the railroad spur that serves the west side of building B-1. Several accumulations of crates or boxes and one possible horizontal tank are visible on the south side of the deposit. Mounds of mixed light- and dark-toned material are also visible in fill area FL-2-West, particularly along ditch D-1. Surface runoff from the fill area and these deposits drains into the adjacent ditch D-1.

The three horizontal storage tanks, also on the north side of drainage ditch D-1, continue to appear operational and lack secondary containment. Dark-toned, possible ground staining is visible around these tanks and may indicate spillage or leakage. Rainwater runoff could transport potential contamination from the stained soil around these tanks into drainage ditch D-1.

Building B-1 remains operational. A dark-toned emission is visible coming from the tall smokestack SS-1 for the first time. Six horizontal tanks can be observed in a group at the northwest corner of building B-1 and no spillage or leakage is noted. A pile of light-toned material has been accumulated next to the large vertical tank on the north side of building B-1. Two medium-sized vertical tanks have been installed next to the three vertical columns on the north side of building B-1. A pile of dark-toned material is visible north of these vertical tanks.

It appears that four of the seven horizontal tanks observed in 1963 on the south side of building B-1 have been removed. Dark-toned, possible ground stains observed near the former location of these tanks are an indication that the tanks may have leaked.

The accumulation of light-toned mounded material noted in storage area OS-3 has been reduced in size compared to its appearance in 1963. However, area OS-3 contains both light- and dark-toned material and a ground stain. Surface runoff from this storage area drains into ditch D-1.

Buildings B-2 through B-5A do not appear to have been modified since 1963. The larger of the two stockpiles SP-4 noted in 1963 northeast of building B-4 is still visible. But only a pile of dark-toned material is present north of building B-2 where the other stockpile SP-4 was previously observed. Large deposits of mixed light- and dark-toned mounded material have been accumulated along the south side of ditch D-1. Potential contamination from these deposits would enter ditch D-1 and flow into the Hackensack River.

To the south, dark-toned liquid is visible inside the secondary containment wall around the six horizontal tanks situated east of building B-5A. The source of a dark-toned ground stain observed outside the east containment wall could be leakage from the containment wall or spillage/leakage/discharge from a lone railroad (R/R) tankcar at the north side of this stain.

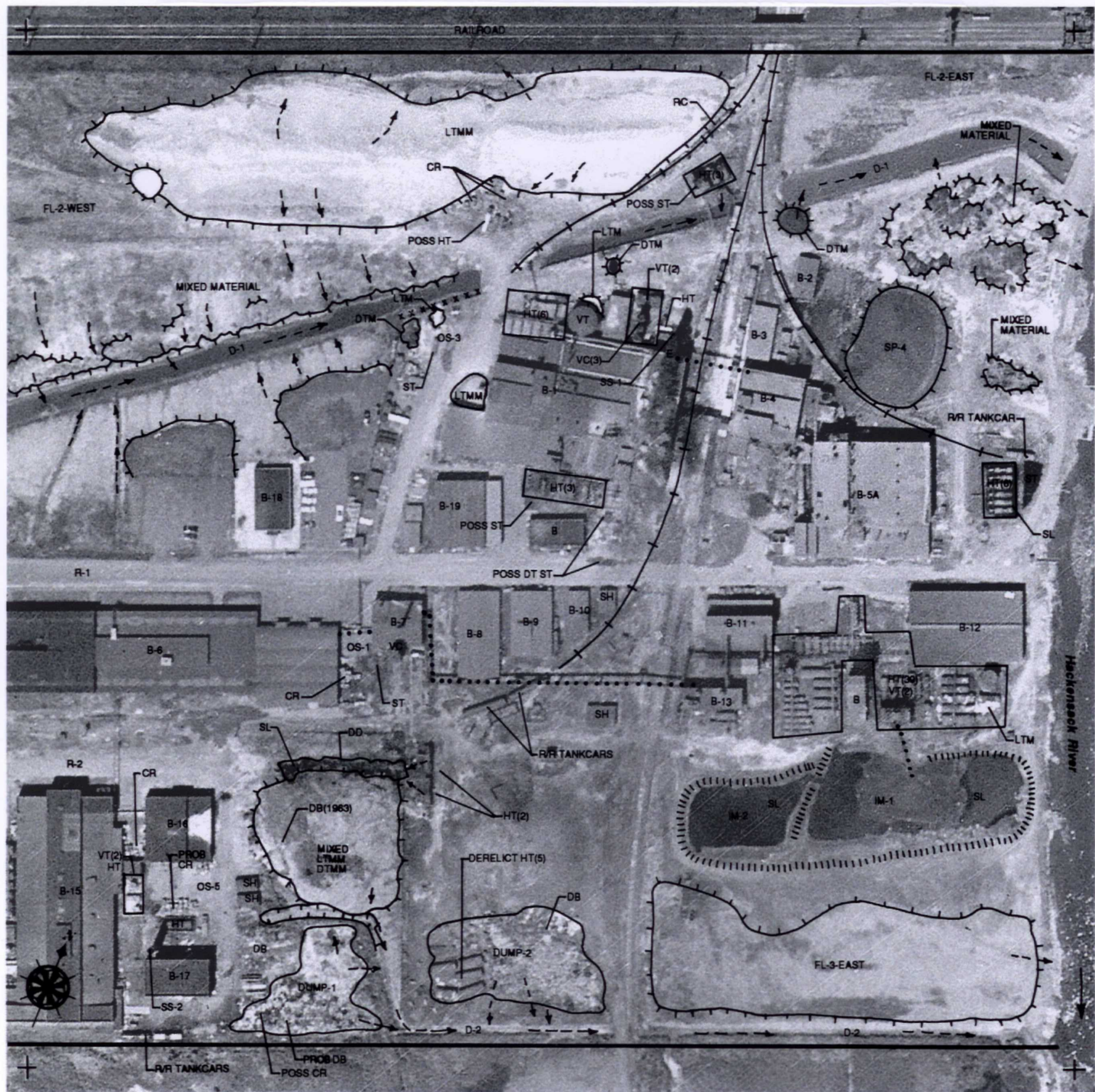
Buildings B-6 through B-10 do not appear to have been modified since 1963. Boxes or crates are visible on the east side of building B-6 and a ground stain is noted between building B-6 and B-7. The two horizontal tanks south of building B-7 are adjacent to a large depression (DD). The dark-toned standing liquid in this depression could be leakage/spillage/discharge from the horizontal tanks. Between the depression DD and Dump-1 additional mixed light- and dark-toned material has been deposited.

The resolution of the photograph reveals that the tanks south of buildings B-11 and B-12 are within a single tank farm. The tanks do not appear to have been modified since 1963. Light-toned material is evident in the southeast corner of this tank farm.

The berm that divides impoundment IM-1 from IM-2 appears to have been breached. Both impoundments contain standing liquid. Filling operations continue at fill area FL-3-East.

Buildings B-15 through B-17 remain operational. One horizontal and two vertical tanks have been installed on the east side of building B-15. The storage area OS-5 contains probable crates/boxes. Dump-1, east of buildings B-16 and B-17, continues to be expanded and contains possible crates/boxes and probable debris. Dump-2, further to the east, has also been increased in size.

Five derelict horizontal tanks are noted at the south end of Dump-2. Ditch D-2 receives runoff and possible discharges from buildings B-15 through B-17 in the southwest portion of the plant as well as runoff from both Dump-1 and Dump-2.



INTERPRETATION CODE

—	SITE BOUNDARY
XXXXXX	FENCE
←	DRAINAGE
→	FLOW
—+—+—+—	RAILWAY
.....	PIPELINE
	BERM/DIKE
(circle with crosshairs)	EXCAVATION, PIT (EXTENSIVE)
(circle with dots)	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 13. Standard Chlorine site, August 11, 1968. Approximate scale 1:1,800.

AUGUST 11, 1968 (FIGURE 14)

The western boundary of the site is the Belleville Turnpike. The drainage ditch (D-3) flowing along the east side of this roadway has been used as the location for accumulations of debris (DB-1 and DB-2) deposited north and south of the railroad track, respectively. Light-toned standing liquid and possible solid waste are visible in the western portion of fill area FL-2-West. Potentially contaminated runoff from this side of the chemical plant could flow into drainage ditch D-3 or ditch D-1 and eventually enter the Hackensack River.

Since 1963 8 additional horizontal tanks (total 15) have been installed in the tank farm on the west side of building B-15. A secondary containment dike is not evident around these tanks. A large pile of crates/boxes, dark-toned material, and possible debris are observed by the southwest corner of building B-15.

Off-site, several large commercial/industrial buildings (B-21 through B-25) have been erected on the west side of the Belleville Turnpike. South of the site a large fill area (FL-5) is visible near the intersection of Belleville Turnpike and State Route 7. Mixed light- and dark-toned fill, probable construction rubble (RB), and dark-toned liquid spreading patterns are observed in this area.



INTERPRETATION CODE	
	SITE BOUNDARY
	FENCE
	DRAINAGE
	FLOW
	RAILWAY
	PIPELINE
	BERM/DIKE
	EXCAVATION, PIT (EXTENSIVE)
	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 14. Standard Chlorine site, August 11, 1968. Approximate scale 1:2,460.

APRIL 16, 1973 (FIGURE 15)

Since 1968 more fill has been deposited east of building B-20 and has covered much of the former open storage area OS-4. Partially buried, probable debris from area OS-4 is still visible. Across fill area FL-1 patches of light-toned material are discerned.

Roadbed construction activity is observed south of the site. This activity will no longer be discussed unless waste disposal activity is noted or river channel modification is observed.

The fill area (FL-5) observed in 1968 near the Belleville Turnpike and State Route 7 intersection has become a storage area (OS-6), and the mixed light- and dark-toned fill, probable construction rubble, and dark-toned liquid spreading patterns observed in 1968 are no longer evident.

See Figure 16 for a detailed analysis of the eastern portion of the facility and Figure 17 for a detailed analysis of the western portion of the facility.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
→	FLOW
+	RAILWAY
.	PIPELINE
	BERM/DIKE
⊖	EXCAVATION, PIT (EXTENSIVE)
⊕	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 15. Standard Chlorine site, April 16, 1973. Approximate scale 1:4,260.

APRIL 16, 1973 (FIGURE 16)

Since 1968 the large accumulation of light-toned mounded material covering the eastern half of fill FL-2-West is absent. The accumulations of crates or boxes and the one possible horizontal tank noted on the south side of the large deposit are also gone. The extensive mixed light- and dark-toned mounded material noted on fill area FL-2-West along ditch D-1 is no longer visible. The whole area between ditch D-1 and the south side of the railroad has been graded and leveled. The railroad spur that served the west side of building B-1 has been removed.

No secondary containment structure is noted around the three horizontal tanks situated on the north side of ditch D-1. No spillage or leakage is visible. A pipeline between these tanks and building B-1 can be discerned.

Building B-1 remains operational but no emissions are visible over the building or smokestack SS-1. The pile of light-toned material, noted in open storage area OS-3 on the west side of this building in 1968, is absent. However an accumulation of boxes/crates, one possible derelict horizontal tank, and a large pile of debris are visible in area OS-3. Surface runoff from this area enters the adjacent drainage ditch D-1 and eventually reaches the Hackensack River. Seven instead of six horizontal tanks are discerned along the north side of building B-1 but no additional tanks have been removed from the south side of this building. Three, probable derelict, horizontal tanks are observed near the southeast corner of building B-1 and appear to be decommissioned.

Dark-toned, possible stains are observed east of building B-19 and suggest possible spillage or leakage in this area.

The buildings B-2 through B-5A remain but no emissions are visible over building B-5A. The open area north and east of the buildings has been cleaned-up, graded, and leveled. The stockpile SP-4, dark-toned mounded material, and deposits of mixed light-and dark-toned mounded material seen in 1968 are all absent. The river pier remains but no barges are present. The spillage discerned at the group of six horizontal tanks situated east of building B-5A in 1968 is not evident. The dark-toned stain noted next to these tanks at that

time is also absent; however, a small dark-toned ground stain is visible on the south side of these tanks. The railroad spur which ran to building B-5A has been removed.

Buildings B-6 through B-10 do not appear to have been modified since 1968. Stacks of probable drums (DR) are discerned by the northwest corner of building B7.

The two horizontal tanks south of building B-7 are still visible but the large depression noted there in 1968 is no longer evident. Dark-toned ground stains are visible near these tanks. The mounds of mixed light- and dark-toned material observed south of this former depression are not apparent.

The tank farm south of buildings B-11 and B-12 now appears to have a secondary containment berm along its south side. Shadows prevent viewing all tanks, therefore a tank count was not done. No tanks appear to have been removed since 1963. Since 1968 building B-12 has been rebuilt.

No modifications to impoundments IM-1 and IM-2 are noted; however, the berm that separated IM-1 from IM-2 has been repaired. While dark-toned liquid is noted in IM-1 and IM-2, most of impoundment IM-1 appears empty. Two pipes can be seen entering impoundment IM-1.

The open dumps Dump-1 and Dump-2 south of buildings B-6 and B-8 continue to increase in size with more accumulated possible debris and mixed light- and dark-toned material.



INTERPRETATION CODE	
————	SITE BOUNDARY
x x x x x	FENCE
← — — —	DRAINAGE
← — — —	FLOW
— + + + —	RAILWAY
· · · · ·	PIPELINE
	BERM/DIKE
()	EXCAVATION, PIT (EXTENSIVE)
()	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 16. Standard Chlorine site, April 16, 1973. Approximate scale 1:1,650.

APRIL 16, 1973 (FIGURE 17)

Building B-15 remains operational. One railroad tankcar is observed on the south side of building B-15, at a loading rack. A vertical column has been installed on the north side the loading rack. The tank farm on the west side of building B-15 does not appear to have been modified since 1973 and these tanks appear to lack secondary containment. Dark-toned, possible ground stains are visible on the north side of this tank farm and an accumulation of crates is seen south of the tank farm.

Probable crates/boxes are visible between buildings B-6 and B-15 and between B-15 and B-16. The open storage area OS-5; however, appears to have been cleaned up. Dark-toned ground stains are visible between buildings B-16 and B-17. There are no visible stains or spillage at the tanks on the east side of building B-15.

The Dump-1 east of building B-17 continues to accumulate possible debris, and mixed light- and dark-toned material. Drainage ditch D-2 receives possible discharges from buildings B-16 and B-17 and potential contaminated runoff from this portion of the site. An outfall (OF) plume is discerned at the terminus of drainage ditch D-2 as it enters the Hackensack River suggesting the presence of a culvert not previously discerned. The runoff from this ditch appears to also enter the wetland area south of the site.

A June 1978 photograph was reviewed but is not included in the report because of the absence of stereo photo coverage precluded stereoscopic analysis. In the 1978 photograph, dismantling activities at the Standard Chlorine facility had begun. The western portion of building B-1 and buildings B-2 through B-4 had been dismantled and removed. The poor resolution of the 1978 photograph did not permit a detailed observation of the tank farms, impoundments, or dump areas within the chemical plant.



INTERPRETATION CODE	
—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
←	FLOW
+	RAILWAY
· · · · ·	PIPELINE
	BERM/DIKE
()	EXCAVATION, PIT (EXTENSIVE)
()	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 17. Standard Chlorine site, April 16, 1973. Approximate scale 1:1,100.

MARCH 22, 1979 (FIGURE 18)

Due to the poor quality of the scratched 1979 film, an enlarged photograph is not included in this report. As a result of the reduced size of the image not all features have been annotated.

No activity is discerned at fill area FL-1 on the north side of the railroad. Building B-20 has been significantly enlarged with construction of an addition on its west side. Probable debris is visible on the east side of the building. Former open storage area OS-4 is vacant and the rail spur that formerly served building B-20 has been removed.

Fill area FL-2-West has been graded, leveled, and cleared. Across the northern portion of the site much of ditch D-1 has been covered-over since 1973. The three horizontal tanks, observed on the north side of the former ditch D-1 in 1976, have been removed. An area of light-toned material is seen in their former location.

Building B-1, adjacent tanks, connected vertical columns, and the tall smokestack observed in 1973 have all been dismantled and removed. The open storage area OS-3 and three probable decommissioned horizontal tanks observed by the southeast corner of building B-1 have also been removed. Ground scars (not annotated) and patches of light-toned material are visible in the proximity of this dismantled building. Buildings B-18 and B-19 remain; building B-18 is completely enclosed by a fence.

Buildings B-2 through B-5A and the group of six horizontal tanks previously observed east of the former building B-5A have been dismantled and removed. The river pier remains but now appears to be derelict; consequently, it will no longer be discussed or annotated. Ditch D-1 has been covered-over west of the railroad tracks that entered the plant from the north. The entire open area in the northeast portion of the site has been graded and leveled.

Buildings B-6 through B-10 do not appear to have been modified since 1973.

Buildings B-11 through B-13 have not been noticeably changed since 1973. The horizontal and vertical tanks in the tank farm south of buildings B-11 and B-12 do not appear to have been modified. Impoundments IM-1 and IM-2 both contain standing liquid. Fill, debris, and possible solid waste is observed along the south rim of impoundment IM-1.

The buildings B-14 through B-17 appear to remain operational. Since 1973 vertical columns have been installed on the southwest corner of building B-15, bringing the total in that location to four. Railroad tankcars are observed at the loading rack at the southwest corner of building B-15.

Storage area OS-5 on the east side of building B-15 is vacant. The open dumps Dump-1 and Dump-2 east of building B-17 continue to contain mixed light- and dark-toned mounded material, probable debris, probable crates/boxes, and possible solid waste (not annotated). Drainage ditch D-2 receives possible discharges and runoff from the southern portion of the site.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
←	FLOW
—+—+—+—	RAILWAY
· · · · ·	PIPELINE
	BERM/DIKE
(circle with crosshairs)	EXCAVATION, PIT (EXTENSIVE)
(cloud-like shape)	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 18. Standard Chlorine site, March 22, 1979. Approximate scale 1:4,130.

NOVEMBER 8, 1982 (FIGURE 19)

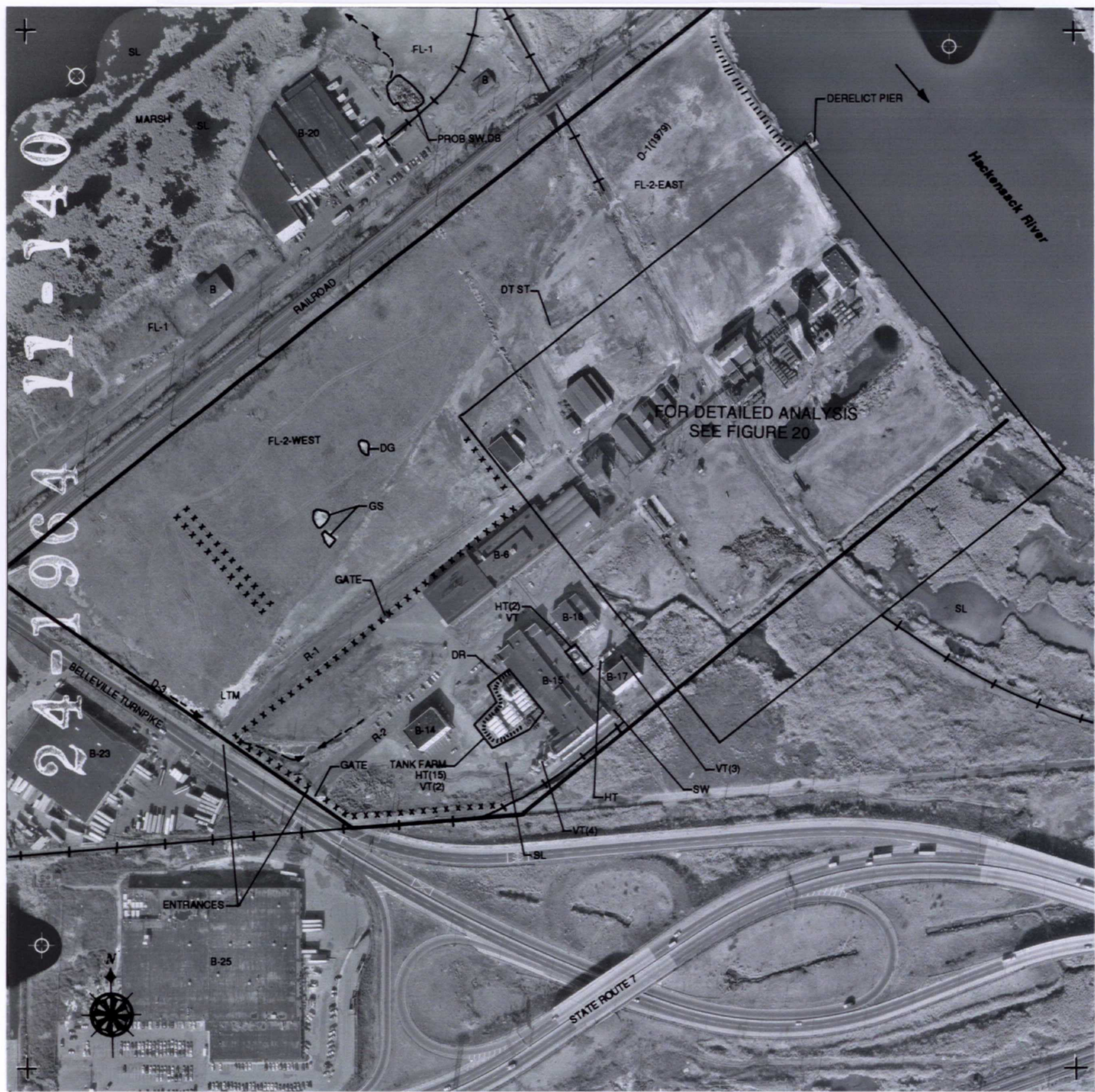
No filling activity is discerned at fill area FL-1. Building B-20 remains operational. An accumulation of probable solid waste and debris is visible on the east side of the building.

Former fill areas FL-2-West and FL-2-East remain vacant; however, an elongated section has been enclosed by a fence in FL-2-West. There are scattered areas of disturbed ground (DG) and ground scars where the vegetation has been scraped away. Light-toned material is evident in the southwest corner of FL-2-West. The remaining portion of ditch D-1 observed in 1979 has been filled-in.

Buildings B-14 through B-17 appear to remain operational. As a result of improved photo resolution an earthen, secondary containment berm can now be observed around the tanks on the west side of building B-15. The 15 horizontal and 2 vertical tanks in this tank farm have not been modified since 1979. A group of 55-gallon drums is visible on the north side of this tank farm.

As a result of improved resolution of this photograph, three vertical, possible storage tanks are discerned on the north side of building B-17 and a group of 55-gallon drums are visible on the east side of building B-17 (see Figure 20).

See Figure 20 for a detailed analysis of the eastern portion of the facility.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
→	FLOW
—+—+—+—	RAILWAY
· · · · ·	PIPELINE
	BERM/DIKE
⊖	EXCAVATION, PIT (EXTENSIVE)
⊕	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 19. Standard Chlorine site, November 8, 1982. Approximate scale 1:3,370.

NOVEMBER 8, 1982 (FIGURE 20)

The Standard Chlorine plant has not been significantly reduced in size since 1979. The resolution of the 1982 photo coverage enables the denotation of a perimeter fence. The foundation pattern of dismantled building B-1 remains visible and dark-toned stains are visible nearby. A pile of probable rubble is observed west of this foundation. Dark-toned mounded material is visible on the west side of building B-19. No modifications are observed at either building B-18 or B-19 and neither building appears to be occupied.

With the covering of the former ditch D-1, the entire open area in the northeast portion of the site has been cleared, graded, and leveled.

Buildings B-6 through B-12 appear to be vacant. Scattered ground stains are noted near buildings B-6, B-10, and B-12. The resolution of this photograph permits observing a secondary containment wall around the two horizontal tanks south of building B-7. These tanks appeared to be leaking in 1968 (see Figure 13). A possible horizontal tank is seen south of these tanks. To the south of building B-8 there is a deposit of solid waste.

Since 1979 both open dumps Dump-1 and Dump-2 to the east of building B-17 have been increased in size. These dumps contain light-toned mounded material, drums, debris, and solid waste. Dump-2 also contains rubble, mounded derelict equipment, possible scrap metal, probable debris, and probable solid waste. Derelict horizontal tanks are noted between the two dumps.

There are 36 horizontal and 2 vertical tanks observed within the tank farm south of buildings B-11 and B-12. The resolution of the 1982 photograph enables 11 horizontal tanks to be discerned on the east side of building B-11, and 4 horizontal tanks south of building B-13. A large stain is noted between the wings of building B-12.

Dark-toned liquid is visible in both impoundments IM-1 and IM-2. Additional fill, rubble, debris, and solid waste have been deposited along the south edge of impoundment IM-1. More fill, rubble, debris, and possible solid waste have been amassed along the east side of fill area FL-3-East southeast of impoundment IM-1. The probable wastewater treatment tank is visible on the south side of impoundment IM-2.

Ditch D-2 continues to receives possible discharges from Buildings B-15 through B-17 and runoff from the southern portion of the site. Ditch D-2 has deteriorated and runoff now enters a marsh area southeast of building B-17.



INTERPRETATION CODE	
—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
→	FLOW
—+—+—+—	RAILWAY
· · · · ·	PIPELINE
	BERM/DIKE
(circle with cross)	EXCAVATION, PIT (EXTENSIVE)
(cloud-like shape)	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 20. Standard Chlorine site, November 8, 1982. Approximate scale 1:1,440.

FEBRUARY 23, 1984 (FIGURE 21)

Due to the poor quality of the 1984 film, an enlarged photograph is not included in this report. The central portion of the Standard Chlorine plant between roadways R-1 and R-2 appears to be vacated; however, the southwest portion of the chemical plant south of roadway R-2 remains operational.

The structure west of building B-20 has been demolished, and rubble and debris are observed in the former location. No filling activity is discerned at the former fill area FL-1 on the north side of the railroad. Building B-20 remains operational. A pile of possible solid waste, debris, and ground stains are visible on the east side of the building. Patches of light-toned material are noted at scattered locations around the former fill area FL-1.

Former fill areas FL-2-West and FL-2-East appear vacant and covered with vegetation. The isolated patches of disturbed ground observed in 1982, where vegetation had been scrapped away, are less evident. Light-toned liquid is visible in a low area at the southwest corner of fill area FL-2-West.

Both light- and dark-toned material, dark-toned ground stains, and solid waste are observed around the ruins of the foundation of the dismantled building B-1. No modifications are observed to buildings B-18 and B-19. The dark-toned mounded material noted on the west side of pile of building B-19 in 1982 is still evident.

Buildings B-6 through B-10 appear to be unoccupied. A large, elongated stain is visible south of building B-6. The solid waste, horizontal tank, and crates remain south of buildings B-7 and B-9.

Buildings B-11 through B-13 appear to be unoccupied. The poor resolution of the 1984 photograph does not allow the determination of the number of tanks in the tank farm south of buildings B-11 and B-12. No tanks appears to have been removed since 1982.

Dark-toned standing liquid continues to be observed in both impoundments IM-1 and IM-2. The fill, rubble, debris, and possible solid waste are still observed at the south edge of impoundment IM-1; however, the deposits along the river have been removed.

Buildings B-14 through B-17 appear to remain operational. No spillage or leakage is discerned at the tank farm on the west side of building B-15. One of the four vertical columns on the south side of building B-15 has been removed. A solid waste container is visible near the southeast corner of building B-15. Both open dumps Dump-1 and Dump-2 to the east of building B-17 remain, and do not appear to have changed significantly. An additional elongated mound of debris has been built up south of Dump-1.



INTERPRETATION CODE

—	SITE BOUNDARY
x x x x x	FENCE
←	DRAINAGE
←	FLOW
+	RAILWAY
· · · · ·	PIPELINE
	BERM/DIKE
⊖	EXCAVATION, PIT (EXTENSIVE)
⊕	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 21. Standard Chlorine site, February 23, 1984. Approximate scale 1:4,430.

APRIL 16, 1995 (FIGURE 22)

Building B-20 remains operational. Fill area FL-1 appears to have been graded, leveled, and paved with a light-toned material. Since 1984 water has inundated the marshland north of building B-20. The channel of the Hackensack River does not appear to have been modified in proximity to the site.

The fill area FL-2-West remains vacant land with two areas of ground scarring visible in the central portion. Fill area FL-2-East is a paved parking lot for truck trailers.

The Standard Chlorine plant has been further dismantled and no longer appears operational. The area around the foundation of dismantled building B-1 has been graded, leveled, and paved with a light-toned material. This area has been cleared of the deposits of light- and dark-toned material and solid waste seen in 1984. As a result of the clean-up, the dark-toned ground stains are covered and no longer observed. The pile of rubble north of building B-19 has also been cleaned up. The area between building B-19 and the east edge of the site is now a truck-trailer parking lot. Building B-18 has been removed and this area is also a truck-trailer parking lot.

See Figure 23 for a detailed analysis of the eastern portion of the facility and Figure 24 for a detailed analysis of the western portion of the facility.



INTERPRETATION CODE

————	SITE BOUNDARY
x x x x x	FENCE
← — — —	DRAINAGE
← — — —	FLOW
— + + + —	RAILWAY
.	PIPELINE
	BERM/DIKE
	EXCAVATION, PIT (EXTENSIVE)
	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

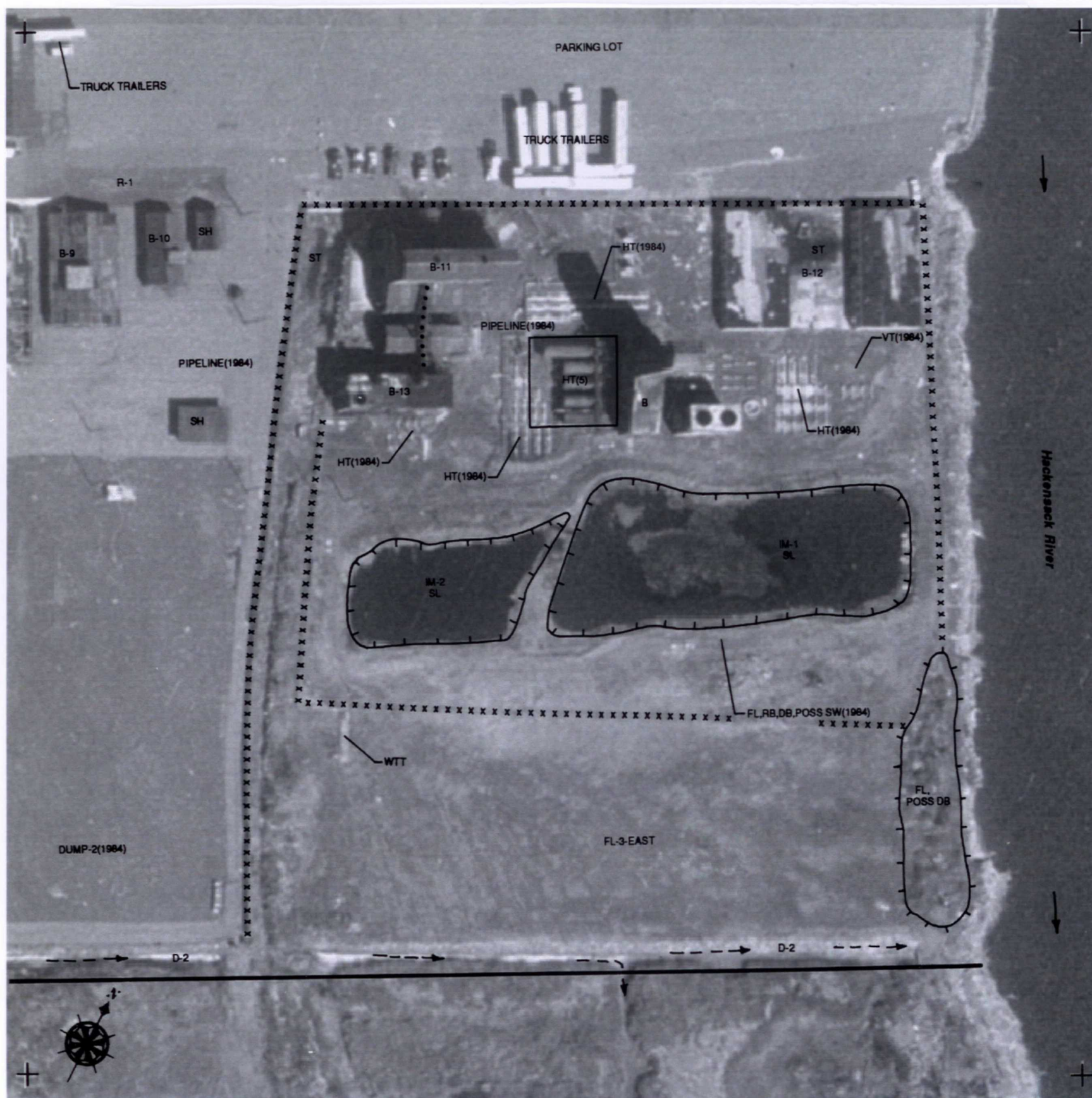
Figure 22. Standard Chlorine site, April 16, 1995. Approximate scale 1:4,060.

APRIL 16, 1995 (FIGURE 23)

Buildings B-6 through B-10 appear to be unoccupied and abandoned. The horizontal tanks south of building B-7 have been removed. The area south of buildings B-8 and B-9 has been cleaned-up, including Dump-2 which has been removed.

Buildings B-11 through B-13 appear to be unoccupied and abandoned. Dark-toned ground stains are visible at buildings B-11 and B-12. All except five of the tanks at the tank farm south of buildings B-11 and B-12 have been removed. Empty concrete tank stands remain at those locations where tanks were removed.

Both impoundments IM-1 and IM-2 remain but appear to be abandoned; dark-toned standing liquid is visible in each impoundment. Since 1984 a fence has been erected around the buildings and both impoundments. A bottom-lining material was not discerned in either impoundment at any time during this analysis. The fill, rubble, debris, and possible solid waste is no longer evident at the south edge of impoundment IM-1; however, fill and possible debris is again visible along the river bank south of impoundment IM-1.



INTERPRETATION CODE

————	SITE BOUNDARY
x x x x x	FENCE
← — — —	DRAINAGE
← — — —	FLOW
— + + + —	RAILWAY
.	PIPELINE
	BERM/DIKE
	EXCAVATION, PIT (EXTENSIVE)
	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
CONT	CONTAINERS
CR	CRATES
D	DRAINAGE DITCH
DB	DEBRIS
DD	DEPRESSION
DG	DISTURBED GROUND
DR	DRUMS
DT	DARK-TONED
E	EMISSION
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANK
IM	IMPOUNDMENT
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
OF	OUTFALL
OS	OPEN STORAGE AREA
R	ROADWAY
RB	RUBBLE
RC	RAILCAR
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
SP	STOCKPILE
SS	SMOKESTACK
ST	STAIN
SW	SOLID WASTE
VC	VERTICAL COLUMN
VT	VERTICAL TANK
WTT	WASTEWATER TREATMENT TANK

Figure 23. Standard Chlorine site, April 16, 1995. Approximate scale 1:1,070.

APRIL 16, 1995 (FIGURE 24)

Buildings B-14 through B-17 appear unoccupied. All of the tanks in the tank farm on the west side of building B15 have been removed. In addition, all of the vertical columns, and the horizontal and vertical tanks have been removed from the south and east sides of building B-15. Storage area OS-5 on the east side of building B-15 is vacant and all debris has been removed. The crates or boxes noted near building B-15 in 1984 are also absent.

The open dumps Dump-1 and Dump-2 east of building B-17 are absent; the land has been cleaned-up and graded. All waste material, debris, derelict equipment, and scrap metal noted in 1984 has been removed.

Ditch D-2 continues to receives runoff from the southern portion of the site. This ditch has further deteriorated and drainage enters a marshland south of the site where standing liquid is visible.

GLOSSARY

Access Road - A paved or unpaved route of vehicular access.

Berm/Dike - An embankment of either natural or man-made materials that impounds liquids, solids or other materials, or controls flood waters.

Building (B) - A relatively permanent, essentially boxlike construction having a roof.

Container (CONT) - Any portable device in which material is stored, transported, handled, or disposed.

Dark- (DT), Medium- (MT), or Light-Toned (LT) - Tones of features in question are compared with the darkest and lightest tones of gray (if using B&W photography) on the print.

Debris (DB) - The remains of anything that can be identified as being broken down, destroyed, demolished, or dismantled.

Disturbed Ground (DG) - A rough area where the ground surface has been dug up or overturned.

Ditch - A long narrow excavation, as for draining or irrigating land.

Drums (DR) - Metal cylinders used for the storage, transportation, or disposal of materials.

Fill (FL) - Earth, stones, or other material that is used to build up the level of an area of ground.

Ground Scar (GS) - An area of bare soil, apparently the result of human activity.

Impoundment (IM) - A liquid containment area that appears to be related to activity on a site but does not appear to be used for waste storage, disposal and/or treatment.

Material (M) - Raw or waste materials on or in the vicinity of the site.

Mounded Material (MM) - Piles of raw or waste materials on or in the vicinity of the site.

Open Storage Area (OS) - An area of open-air (outdoor) storage of containerized, raw or waste materials, within industrial or manufacturing sites.

Outfall (OF) - The place where an effluent is discharged into the environment.

Rubble (RB) - Broken bits and pieces of anything that has been demolished (usually associated with brick or stone).

Solid Waste (SW) - Any garbage, refuse, or sludge from a waste treatment, water supply treatment plant, or air pollution control facility, and other discarded material, including solid or semi-solid material resulting from industrial, commercial, mining, and agricultural operations, and from community activities; does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges.

Stain (ST) - A residue or discoloration resulting from a spill, discharge, or removed/dispersed materials

Standing Liquid (SL) - A small, shallow, temporary collection of liquid, not necessarily waste Not to include liquid contained in impoundments, trenches, pits, etc

Tanks - Vertical tanks (VT), horizontal tanks (HT), pressure tanks (PT), tank farms, and solid waste management units A large receptacle, container, or structure for holding liquid or gas

REFERENCES

MAPS

Source ^a	Figure	Name	Scale	Date
USGS	1	United States	1 2,500,000	1972
USGS	2	Jersey City, NY-NJ	1 24,000	1981
USGS	2	Weehawken, NY-NJ	1 24,000	1981

COLLATERAL INFORMATION

EPA. 2002. Collateral information supplied by EPA Region 2 as attachment to Remote Sensing Services Request Form
 NJ 2001 www.judiciary.state.nj.us/fuentes/standard1101.htm - 29k - Cached - Similar pages
 LMS (Lockheed Martin Services). 2002 Master Quality Assurance Project Plan
 Prepared for EPA Environmental Sciences Division Contract 68-D-00-267
 Las Vegas, Nevada

AERIAL PHOTOGRAPHS

Photo source ^a	Figure ^b	Date of acquisition	Original scale	Film type ^c	Mission I.D.	Source frame #	EPIC ID #
KVT	3,4	11-09-40	1 16,000	B&W	M31	830-832	067687,067609,10
KVT	-	00-00-42	1 10,000	B&W	M(2-79)	40,44	067607,067608
NOS	-	06-16-46	1.24,000	B&W	-	315	04602
ROBASI	5,6	04-28-47	1 12,000	B&W	NJ	294,295	067605,067606
NOS	-	04-20-51	1 10,000	B&W	J	1918-1922	068205,068209
USGS	-	01-04-54	1 20,000	B&W	GS-VBV	657	023329
USGS	7,8	02-18-54	1 20,000	B&W	GS-VBV	10124-26	067486,7,067518
ROBASI	-	04-15-59	1 12,000	B&W	JER-11W		05390
AVPT	-	04-23-61	1 18,000	B&W	1116	1615,16	061152,061153
ROBASI	9-11	01-14-63	1 14,000	B&W	HMC	88,89	067603,067604
NOS	-	04-06-63	1 36,000	B&W	-	5218	04608
USGS	-	02-23-66	1 20,000	B&W	GS-VB10	47,48	067395,067396
ROBASI	12-14	08-11-68	1 14,000	B&W	HMC	38,39	067601,067602
AVPT	-	04-07-69	1 24,000	B&W	1752-32	1426-1428	05661-2,036177
EPA	15-17	04-16-73	1 11,000	B&W	APS,NJB	7-12,1-80	05402,036325

(continued)

AERIAL PHOTOGRAPHS (continued)

Photo source ^a	Figure ^b	Date of acquisition	Original scale	Film type ^c	Mission I D	Source frame #	EPIC ID #
NOS	-	10-19-74	1 28,000	CC	-	7146	04612
NOS	-	10-03-75	1 24,000	B&W	-	5971	04614
TSRPC	-	01-19-76	1 84,000	B&W	TSRPC	51,52	061136,061137
EPA	-	05-10-76	1 28,000	B&W	-	875,876	061127,061128
USGS	-	10-29-76	1.84,000	B&W	GS-VDUW	51	061134,061135
NOS	-	08-25-77	1 36,000	B&W	-	8752	04617
NOS	-	06-30-78	1 36,000	B&W	-	4855	05477
KEY	18	03-22-79	1 24,000	B&W	-	6032,6033	066686,066687
NOS	-	10-13-81	1 28,000	B&W	-	6291	04619
ROBASI	19,20	11-08-82	1 6,000	B&W	24-1964	139-140	067598-067600
ROBASI	21	02-23-84	1 9,000	B&W	K84-04	2,3	067615,067597
USGS	-	03-16-85	1 40,000	CIR	HAP83	175	065597
EPA	-	05-30-86	1 8,700	CIR	86-027	5984	RL0003287
MH	-	00-00-86	1 40,000	B&W	JSS IRC	1103	065608
KEY	22-24	04-16-95	1 20,000	B&W	KAS94-83	5555,5556	066684,066685

- ^aAVPT Aerial Viewpoint, Inc., Spring, Texas
EPA U S Environmental Protection Agency, Environmental Sciences Division, Las Vegas, Nevada
KEY Keystone Aerial Surveys, Inc., Philadelphia, Pennsylvania
KVT King Visual Technology, Hyattsville, Maryland
MH Markhurd, Minneapolis, Minnesota
NOS National Ocean Service, Coast and Geodetic Survey, Washington, D C
ROBASI Robinson Aerial Surveys, Inc., Newton, New Jersey
TSRPC Tri-State Regional Planning Commission, New York, New York
USGS U S Department of Interior, U S Geological Survey, Washington, D.C.
- ^bPhotographs listed with no figure number were analyzed but not placed in this report because no significant features or changes had occurred since the previous photographs
- ^cB&W Black-and-white
CC Conventional Color
CIR Color Infrared